

UPS
MetaSystem



EN

ARCHIMOD®

UPS

Industry



Health Sector



Transport



ICT



Emergency





ARCHIMOD® is the innovative UPS system with modular and scalable architecture and power ratings between 20kVA and 120kVA that can adapt to all electrical protection requirements. Thanks to its revolutionary concept, ARCHIMOD® offers more power, more autonomy and more reliability. ARCHIMOD® is the very first system to offer three cutting edge technologies all in one UPS:

Modularity – Scalability – Hot Swap Redundancy



Exclusive features

Energy Management	Efficiency up to 95%	Reduced electricity consumption
Battery Management	3-step Smart Charger	Prolonged battery life
Footprint	Average surface taken up: 0.5 m ²	Easy installation without the need for a dedicated room
Scalable	Upgrades in 6.7kVA steps	Easy evolution
Redundancy	Redundant Power, Control and Batteries modules	Total reliability
Maintenance	Hot-Swappable modules replacement	50% less in maintenance costs



Efficiency

ARCHIMOD® improves the overall efficiency of the UPS solution making it possible to reach 99% in the Eco Mode and 95% in the On Line Mode. Thanks to the system's modular and scalable structure, costs for any initial oversizing are avoided, reducing unnecessary consumptions of electricity. With ARCHIMOD® you have a return on your investment (ROI) within five years.

EXAMPLE 1
Load to protect that grows over time

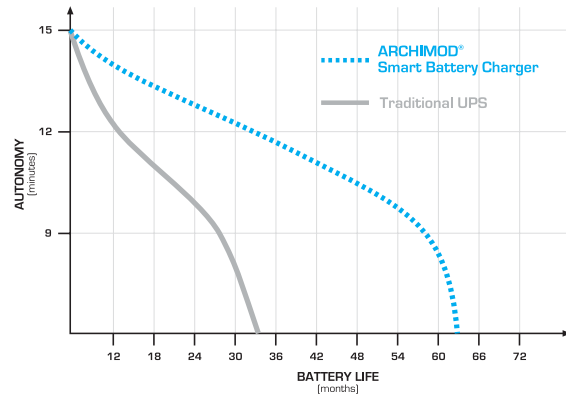
DATA	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	Total of 5 Years
Protected Load (kW)	40	60	70	80	90	→ Load evolution
Traditional UPS power (kW)	96	96	96	96	96	→ Traditional UPS Oversized
ARCHIMOD® UPS power (kW)	48	64	80	96	96	→ ARCHIMOD® evolution
Traditional UPS efficiency (%)	0,88	0,9	0,91	0,92	0,92	
ARCHIMOD® UPS efficiency (%)	0,95	0,95	0,95	0,95	0,95	
Energy Saving (kWh)	24.528	26.280	24.528	21.024	21.024	117.384
Economic Saving (€)	2.698	2.891	2.698	2.313	2.313	12.912,00

EXAMPLE 2
Redundant solution

DATA	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	Total of 5 Years
Protected Load (kW)	40	40	40	40	40	
Traditional UPS power (kW)	96	96	96	96	96	→ Traditional 48kW+48kW UPS
ARCHIMOD® UPS power (kW)	64	64	64	64	64	→ ARCHIMOD®48kW+1
Traditional UPS efficiency (%)	0,88	0,88	0,88	0,88	0,88	
ARCHIMOD® UPS efficiency (%)	0,95	0,95	0,95	0,95	0,95	
Energy Saving (kWh)	24.528	24.528	24.528	24.528	24.528	122.640
Economic Saving (€)	2.698	2.698	2.698	2.698	2.698	13.490,00

SMART BATTERY CHARGER system

The 3-stage intelligent charger system, "Smart Charger", prolongs battery life considerably even by 50%, halving the number of replacements and environmental pollution linked to battery disposal.



Maintenance costs

ARCHIMOD® maintenance costs are reduced up to 30% less than traditional systems. Module standardisation (all requirements can be covered with one extra module), compact size and ease of replacing speed up repair times.





Reliability

Thanks to the modular architecture the load can be shared among the modules, reducing the risk of downtimes should one module fail: the system does, in fact, carry on working so there are no downtimes. Module compactness and ease of replacing (hot-swap) help reduce intervention and restore times.

Scalability

All you have to do to upgrade ARCHIMOD® is to simply add power modules without cutting load off, without increasing the overall dimension and without making any changes to the electrical connections.



Costs of the area taken up (Footprint)

ARCHIMOD® can be added to a pre-existing infrastructure without the need for a dedicated room because, besides dispersing very little heat, it takes up very little space because it is vertically conceived.

Transportation and handling costs

ARCHIMOD®, disassembled into modules, is easily moved and positioned at the installation site without the need for any special tools or means. This gives a reduction in transportation costs of more than 50%.





Protecting the power supply with ARCHIMOD®

TUNNEL

The control or power tunnel can house up to 3 power modules or additional battery charger modules, it occupies 6 U racks and is designed for connecting to other tunnels. The power tunnel features no control logic, housing only modules. The control tunnel includes control logic,



the display, keyboard, status indicator and the maintenance serial interface RS232. At the back we find: a double slot for the SNMP board, an LL port, an RS232 and four relay contacts. Up to 3 control tunnels can be installed inside the rack cabinet to allow their redundancy (up to level N+2) and all the ARCHIMOD® components.

POWER MODULES

The 6.7 kVA power module is extremely compact for ease of installation. Each module consists of a PFC, booster, inverter, battery charger, bypass and a microprocessor controlled command and control board.



1 to 18 power modules can be installed inside the rack in parallel with each other until the total power of the UPS is reached. They are independent from one another and guarantee a supply of (residual) power to the UPS even if one of them fails. To fully restore the system, power to the load does not have to be disconnected nor does the system have to be put in the bypass mode thanks to the Hot Swap function.

BATTERY MODULES

The module houses seven 12 V 9 Ah batteries connected in series and is divided into two series, 36 V and 48 V, to guarantee maximum safety especially during maintenance. Autonomy can be increased by adding battery modules in multiples of 3 with a simple Plug&Play connection.



Each module is Hot Swappable and can be replaced without disconnecting power to the load or switching the system to bypass.

DISTRIBUTION MODULE

The switching and cutting devices, the terminal block for the in/out connection and for the additional batteries are inside the distribution module. It can be accessed at the front and back. With ARCHIMOD® you can have different in/out configurations to suit the existing electrical system and load characteristics. The system can be configured during installation so that the emergency bypass line is independent from the power line.



ARCHIMOD® Industrial Application

Automation | Control Rooms | Production

Critical aspects of this sector

Industrial production requires continuous electrical protection to safeguard people and equipment. The use of an UPS is vital in this sector to guarantee continuity in production and the control and safety of the production lines. The quality and continuity of the power supply is of utmost importance especially if we consider that machinery downtimes can often damage the lines as well as the manufacturing materials.

Solution

The typical solution would be to use a centralised parallel/redundant UPS configuration.

Why ARCHIMOD®

- **Extended Range of input Frequencies and Voltages.** It allows optimum powering of the load also under the most difficult conditions.
- **Low Harmonic Distortion THDi<3%.** It considerably reduces the interfering effects that pollute the electrical line.
- **High Power Factor.** It reduces the number of voltage drops, increases the power available with the same active power and avoids power factor correction systems.
- **Integration.** Integration is possible with the most widely used control and monitoring systems in industrial applications (SNMP, MODBUS, RS485, etc.) thanks to the fact there are several communication interfaces.



ARCHIMOD® The innovative system with a modular and scalable architecture system.

ARCHIMOD® Health Sector Application

Analysis labs | Out-patients Departments | Image diagnostics | Hospitals

Critical aspects of this sector

Some applications in this sector are critical as a patient's life can depend on them. Maximum attention must be paid to choosing the UPS. Given the delicacy of the equipment used in out-patients' departments and analysis labs it is essential to have clean, continuous electricity. The UPS must guarantee maximum quality and a continuous supply for emergency lighting, safety services, electromedical equipment, the electrical equipment of units used to supply gas for medical use, for detection, alarm and fire extinguishing systems.

Solution

A UPS to power user points in the medical environment must be compact, have cutting edge communication capacities and be easy to install.

Why ARCHIMOD®

- **Low Harmonic Distortion THDi<3%**. It considerably reduces the interfering effects that pollute the electrical line.
- **Output Frequency and Voltage**. Sinusoidal waveform, Rated voltage $\pm 1\%$ and Nominal Frequency 50/60 Hz ± 0.1 .
- **Maintenance**. Thanks to its modular structure, based on compact dimensions and weights, it is easy to handle, install and service ARCHIMOD® and there is no need for any particular tools.
- **Footprint optimisation**. ARCHIMOD® is conceived vertically and needs very little space compared to a traditional UPS. It can be installed on premises with minimal requirements (no need to discharge fumes) and in preexisting structures without the need for a dedicated room. Batteries are included in configurations of up to 60kVA in one cabinet.



ARCHIMOD The innovative system with a modular and scalable architecture system.

ARCHIMOD® Transport Application

Air | Sea | Rail | Road Transport

Critical aspects of this sector

Depending on the different transportation characteristics the UPS is fundamental for protecting a great number of applications some of them particularly critical as they are linked to passenger safety. Radar used in air transport is highly sensitive and, besides a continuous supply of power, also needs appropriate stability and the lights on runways must work non-stop. In sea transport, the UPS systems are necessary for protecting navigation instruments and ensuring safety (anti-intrusion, fire, equipment and infirmary). In rail transport the UPS are of vital importance in ensuring a continuous supply of power to the crucial safety systems such as level crossings, traffic lights, stations, tunnels and cab controls. Lastly in road transport, they ensure continuity of the lighting systems inside tunnels with particular attention to saving energy.

Solution

Traffic control systems need protecting with UPS that have a high performance and maximum reliability.

Why ARCHIMOD®

- **Extended Range of Input Frequencies and Voltages.** It allows optimum powering of the load also under the most difficult conditions.
- **Low Harmonic Distorsion THDi<3%.** It considerably reduces the interfering effects that pollute the electrical line.
- **Footprint optimisation.** ARCHIMOD® is conceived vertically and needs very little space compared to the traditional UPS. It can be installed on premises with minimal requirements (no need to discharge fumes) and in pre-existing structures without the need for a dedicated room. Batteries are included in configurations of up to 60kVA in one cabinet.
- **Double input.** It is possible to create redundancy of the power source in order to select the best source for the load.
- **Maximum reliability (MTBF).** Thanks to its modular architecture the load can be divided among several modules reducing the danger of downtimes should one module fail. In the event of a module failure, the equipment carries on working avoiding downtimes.



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ARCHIMOD® ICT Application

DPC | Networking | Broadcasting | Telecoms

Critical aspects of this sector

Today Data Centres are ever more important and, being the heart of a company, they have to work round the clock. Due to the growth of the quantity of data managed, many companies are looking to optimise management of their IT systems from a distributed organisation to a centralised one (Data Centre). Today IT spending drivers oblige the purchase only of the minimum indispensable but with the possibility of growing when necessary.

Solution

The UPS must be versatile, able to adjust to all load types but, more than anything else, it must be reliable.

Why ARCHIMOD®

- **Footprint optimisation.** The cost elements in a Data Centre depend on the surface taken up and the electricity consumed. Thanks to its high power density (up to 230kva/m²) ARCHIMOD® can be integrated in an existing Data Centre without the need for a dedicated room. ARCHIMOD® is housed inside a standard 19" rack cabinet so can be positioned and moved easily to meet current needs and future system evolutions.
- **Adjusting to the evolution of requirements.** Thanks to ARCHIMOD®, investments in UPS can be optimised, adapting them to actual needs without ruling out future upgrades and avoiding a senseless waste of energy
- **Maximum reliability (MTBF).** Thanks to its modular architecture the load can be divided among several modules reducing the danger of downtimes should one module fail. In the event of a module failure, the equipment carries on working avoiding downtimes.
- **Minimum machine downtime (MTTR).** The Hot Swap function puts a stop to downtimes. Reduced maintenance costs.
- **Reduced consumption.** ARCHIMOD®, with a yield of up to 99%, reduces self-consumption and the dispersion of heat in the environment. Less heat dispersed in the environment means reducing the use of air conditioning systems at the place of installation and, therefore, reducing consumption even more.



ARCHIMOD® The innovative system with a modular and scalable architecture system.

ARCHIMOD® Emergency Application

Emergency lighting | Operations rooms

Critical aspects of this sector

By emergency lighting we mean lighting that has to work when the normally lighting system fails and concerns primarily escape routes and emergency exits. Operations rooms handle emergency situations and continuity for them is a fundamental requirement. The UPS serve as spare power supplies both for lighting and for telecommunications.

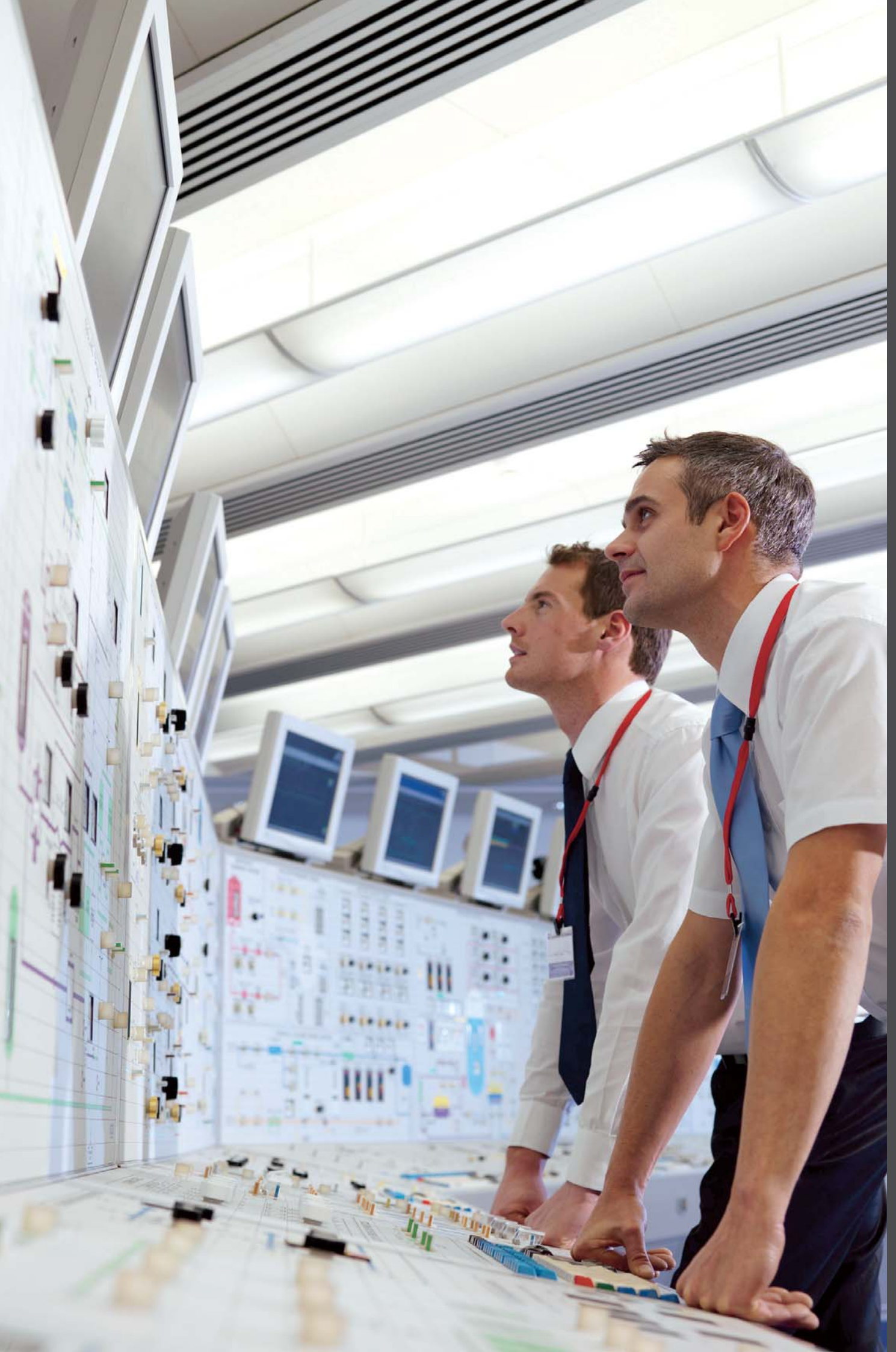
Solution

As a rule UPS with a long operating autonomy are preferred.

Why ARCHIMOD®

- **Regulating output Voltage.** The brightness of lighting can be adjusted, saving energy.
- **Complies with EN 50171*.** Configurations established by the EN50171 standard for the centralised supply of power for emergencies.
- **Footprint optimisation.** ARCHIMOD® is conceived vertically and needs very little space compared to the traditional UPS. It can be installed on premises with minimal requirements (no need to discharge fumes) and in preexisting structures without the need for a dedicated room. Batteries are included in configurations of up to 60kVA in one cabinet.
- **Power factor correction.** In lighting systems where fluorescent/ discharge lamps and ferromagnetic control gears are installed with a reduced power factor ($\cos\phi$) input [0.3/0.4] the current has to be corrected to have $\cos\phi$ values higher than 0.9. . Thanks to the high power factor value in input, ARCHIMOD® corrects the current as required..

*on request



ARCHIMOD® The innovative system with a modular and scalable architecture system.

MODEL	ARCHIMOD® 20	ARCHIMOD® 40	ARCHIMOD® 60	ARCHIMOD® 80
GENERAL CHARACTERISTICS				
Power Rating	6.7 kVA per UPS Module (20kVA per 3 Modules), cosφ 0.8			
Topology	On Line Double Conversion VFI-SS-111			
System design	Modular, scalable & redundant UPS system in one single 19 inch rack cabinet.			
Hot Swap capability	Power and/or battery modules replacement without shutting down the UPS			
INPUT CHARACTERISTICS				
Input Connections	230V,400V 3PH + Neutral		400V 3PH + Neutral	
Input Frequency	50-60 Hz +/-±2% Autosensing			
Input Voltage Range	230V +15%/-20% 1F 400V +15%/-20% 3F		400V +15%/-20% 3F	
Input Current Distortion	< 3%			
Genset Compatibility	ARCHIMOD® can be set up so as to achieve synchronism between the input and output frequency even for wider frequency ranges, ±14%			
Input Power Factor	> 0.99			
OUTPUT CHARACTERISTICS				
Rated Power	20kVA/16kW	40kVA/32kW	60kVA/48kW	80kVA/64kW
Rated Output Voltage	230V 1F,400V 3F		400V 3F	
Efficiency at full load	95%			
Output Frequency (nominal)	50/60 Hz ±0,1			
Crest Factor	3.5:1			
Output Voltage Tolerance	±1%			
Overload Operation	10 minutes @ 125% and 1 minute @ 150%			
Efficiency in Eco Mode Status	99%			
Bypass	Automatic bypass & Maintenance bypass			
BATTERIES				
Battery Module	Battery modules are designed to be easily placed into the rack.			
Battery Type/String Voltage	VRLA - AGM / 252 Vdc			
Battery Runtime	Configurable & Scalable both internally and externally with additional battery cabinets			
Battery Recharge	Advanced 3-Step Smart Charger Technology			
COMMUNICATIONS & MANAGEMENT				
LCD Display	4 lines/20 characters for real time monitoring of UPS status. 4 menu-driven interface buttons 4 status at a glance LEDs			
Communication Ports	2 RS232 Serial Ports, 1 Port with logic contacts, 5 outputs with clean contacts, 2 SNMP interface slots (optional)			
Emergency Power Off (EPO)	Yes			
Remote Mangement	Available			
PHYSICAL CHARACTERISTICS				
Height, Widht, Depht & Rack Heighth	2.080 mm/570 mm/912 mm - 42U			
Installed Power Modules	3	6	9	12
Installable Battery Modules	UP to 30	UP to 24	UP to 18	-
Net Weight	205 Kg	240 Kg	276 Kg	272 Kg
ENVIROMENTAL SPECIFICATIONS				
Temperature/Humidity	0 - 40 °C / 20 - 80% non condensing			
Audible Noise at 1 meter	50±65 dBA			
Heat Dissipation (full load)	2730 BTU/h	5460 BTU/h	8190 BTU/h	10920 BTU/h
CERTIFICATIONS				
Certifications	EN/IEC 62040-1-1, EN/62040-2, EN/IEC 62040-3, VFI-SS-111			
Standard Warranty	Repair or replacement 2 years			
SERVICES				
Installation	User capable, Modular Rack Based structure and "p&p" modules make easy and quick installation and configuration			
Maintenance	User capable, optional factory service available			

ARCHIMOD® 100

ARCHIMOD® 120

6.7 kVA per UPS Module (20kVA per 3 Modules), cosφ 0.8

On Line Double Conversion VFI-SS-111

Modular, scalable & redundant UPS system in one single 19 inch rack cabinet.

Power and/or battery modules replacement without disconnecting the UPS

400V 3F + Neutral

50-60 Hz ±2% Autosensing

400V +15%/-20% 3F

< 3%

ARCHIMOD® can be set up so as to achieve synchronism between the input and output frequency even for wider frequency ranges, ±14%

> 0.99

100kVA/80kW

120kVA/96kW

400V 3F

95%

50/60 Hz ±0,1

3.5:1

±1%

10 minutes @ 125% and 1 minute @ 150%

99%

Automatic bypass & Maintenance bypass

Battery modules are designed to be easily placed into the rack.

VRLA - AGM / 252 Vdc

Configurable & Scalable both internally and externally with additional battery cabinets

Advanced 3-Step Smart Charger Technology

4 lines/20 characters for real time monitoring of UPS status. 4 menu-driven interface buttons 4 status at a glance LEDs

2 RS232 Serial Ports, 1 Port with logic contacts, 5 outputs with clean contacts, 2 SNMP interface slots (optional)

Yes

Available

2.080 mm/570 mm/912 mm - 42U

15

18

318 Kg

364 Kg

0 - 40 °C / 20 - 80% non condensing

50±65 dBA

13650 BTU/h

16380 BTU/h

EN/IEC 62040-1-1, EN/62040-2, EN/IEC 62040-3, VFI-SS-111

Repair or replacement 2 years

User capable, Modular Rack Based structure and "p&p" modules make easy and quick installation and configuration

User capable, optional factory service available



20

40

60

80

100

120



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